

Appl. No. 10/027,667
Atty. Docket No. 8828
Amdt. dated 10/13/2005
Reply to Office Action of 05/13/2005
Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An apparatus for electrolyzing an electrolytic solution having chloride salt, said apparatus comprising:

(a) a non-barrier electrolytic cell comprising:

- (i.) an anode;
- (ii.) a cathode, said anode and said cathode defining a passage formed therebetween; said passage having a distance between said anode and said cathode of less than about 0.6 mm;
- (iii.) an inlet port communicating with said passage, said inlet port used to receive a flow of electrolytic solution; and
- (iv.) an outlet port communicating with said passage, said outlet port providing an exit for the flow of electrolytic solution having been electrolyzed; and

~~(b)~~ a direct current power supply ~~that delivers having less than about~~ 2.7 watts of power providing an electrical current ~~[[from]]~~ between said anode ~~[[to]]~~ and said cathode, ~~wherein~~ whereby the electrical current electrolyzes the flow of electrolytic solution between said anode and said cathode and thereby achieves a Productivity Index of at least 245 during electrolyzation of said solution.

~~wherein said apparatus is adapted to accommodate an electrolytic solution having a level of chloride salt of from about 1 ppm to about 500 ppm.~~

2. (Currently amended) The apparatus according to Claim 1 wherein said apparatus further ~~comprising~~ comprises a body, said body providing containment for said electrolytic cell and said current supply and wherein said Productivity Index is at least 300.

3. (Currently amended) The apparatus according to Claim 1 wherein said apparatus further ~~comprising~~ comprises a fluid movement mechanism for moving electrolytic solution into said inlet port and out of said outlet port.

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4. (Original) The apparatus according to Claim 3 wherein said fluid movement mechanism recirculates electrolytic solution that has exited said outlet port back into said inlet port in order to repeat the electrolyzing of the electrolytic solution.
5. (Currently amended) The apparatus according to Claim 1 wherein said apparatus further ~~comprising~~ comprises a filter for removal of impurities.
6. (Original) The apparatus according to Claim 5 wherein said filter is positioned before said electrolytic cell.
7. (Original) The apparatus according to Claim 5 wherein said filter is positioned after said electrolytic cell.
8. (Currently amended) The apparatus according to Claim 5 wherein said filter ~~is adapted~~ has a size to remove 99.95% of particulates having a size of at least 3 microns or greater from the electrolytic solution.
9. (Currently amended) The apparatus according to Claim 5 wherein said filter ~~removes~~ is structured to remove organic species.
10. (Original) The apparatus according to Claim 9 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the organic species to a form that is removable by said filter.
11. (Currently amended) The apparatus according to Claim 5 wherein said filter ~~removes~~ is structured to remove inorganic species.
12. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of inorganic species to a state that is removable by said filter.
13. (Currently amended) The apparatus according to Claim 11 wherein said filter is ~~adapted~~ structured to remove arsenic.

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14. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of arsenic to a state that is removable by said filter.
15. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell.
16. (Original) The apparatus according to Claim 5 wherein said filter is constructed in part or in total of a resin.
17. (Original) The apparatus according to Claim 5 wherein said filter is constructed in part or in total of carbon.
18. (Currently amended) The apparatus according to Claim 1 wherein said apparatus further ~~comprising~~ comprises an ion exchange resin usable as a pre-treatment to the electrolytic solution prior to electrolysis.
19. (Currently amended) The apparatus according to Claim 18 wherein said ion exchange resin is ~~adapted to~~ increases the halogen-containing ion concentration of the electrolytic solution upon contact therewith.
20. (Currently amended) The apparatus according to Claim 18 wherein said ion exchange resin is ~~adapted to~~ decreases the concentration of scale-forming ions from the electrolytic solution upon contact therewith.
21. (Original) The apparatus according to Claim 18 wherein said ion exchange resin is a water softener.
22. (Currently amended) The apparatus according to Claim 1 wherein said apparatus further ~~comprising~~ comprises a water-presence sensor capable of triggering the start of the electrolysis process in the presence of water and also capable of triggering the stop of the electrolysis process in the absence of water.
23. (Currently amended) The apparatus according to Claim 22 wherein said water-presence sensor ~~[[is]]~~ comprises a field effect transistor.

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24. (Original) The apparatus according to Claim 1 wherein said current supply is selected from a group consisting of battery, ac-dc converter, solar cell, manual crank generator system, water pressure/turbine energy system and combinations thereof.
25. (Original) The apparatus according to Claim 1 wherein said anode is a foil electrode.
26. (Original) The apparatus according to Claim 1 wherein said anode comprises a Group VIII metal.
27. (Original) The apparatus according to Claim 1 wherein the anode is a porous anode.
28. (Previously presented) The apparatus according to Claim 27 wherein the porous anode is a porous metallic anode.
29. (Currently amended) The apparatus according to Claim 1 wherein said apparatus is ~~adapted to be used as one or more of the following applications~~ structured as a device selected from the group consisting of: faucet-mounted filters, counter-top water purification devices, under-sink water purification devices, camping/backpack water purification devices, travel water purification devices, refrigerator water purification devices, pitcher-type gravity flow water purification devices, bathing water purification devices, and spa-type water purification devices.
30. (Canceled)
31. (Currently amended) The apparatus according to Claim 1 wherein said apparatus is ~~adapted to kills~~ microorganisms upon electrolyzing the electrolytic solution.
32. (Currently amended) An apparatus for electrolyzing an electrolytic solution, said apparatus comprising:

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- (a) a non-barrier electrolytic cell comprising:
- (i.) an anode, ~~wherein having~~ a surface area of said anode ~~[[is]]~~ of less than about 30 cm²;
 - (ii.) a cathode, said anode and said cathode defining a passage formed therebetween; said passage having a distance between said anode and said cathode of less than about 0.6 mm;
 - (iii.) an inlet port communicating with said passage, said inlet port ~~[[used]]~~ usable to receive a flow of electrolytic solution; and
 - (iv.) an outlet port communicating with said passage, said outlet port providing an exit for the flow of electrolytic solution having been electrolyzed; and
- (e) a current power supply for providing an electrical current ~~[[from]]~~ between said anode ~~[[to]]~~ and said cathode, wherein said current power supply ~~delivers~~ has less than about ~~[[5]]~~ 2.7 watts of power, ~~wherein~~ whereby the electrical current electrolyzes the ~~flow of~~ electrolytic solution between said anode and said cathode and thereby achieves a Productivity Index of at least 245 during electrolyzation of said solution.

~~wherein said apparatus is adapted to accommodate an electrolytic solution having a level of chloride salt of from about 1 ppm to about 500 ppm.~~

33-40. (Canceled)

41. (Currently amended) The apparatus according to Claim ~~[[42]]~~ 32 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of inorganic species to a state that is removable by said filter.

42-93 (Canceled)